

Amendment

Applicant: John A. Wozniak
Serial No.: 10/729,501
Filed: December 5, 2003
Docket No.: 200314345-1
Title: BATTERY PACK WITH PROTECTION CIRCUIT

IN THE CLAIMS

Please amend claims 1, 4, 7, 8, and 10 as follows:

1. (Currently Amended) A battery pack, comprising:
a protection circuit adapted to distinguish between current flow associated with a host device and current consumption associated with electronic components forming the battery pack and detect an excessive current consumption condition associated with the electronic components forming the battery pack.
2. (Original) The battery pack of Claim 1, wherein the protection circuit is adapted to interrupt current flow to the electronic components forming the battery pack in response to detecting the excessive current consumption condition.
3. (Original) The battery pack of Claim 1, wherein the protection circuit is adapted to compare a voltage potential across at least two different current sensors to detect the excessive current consumption condition.
4. (Currently Amended) The battery pack of Claim 1, wherein the protection circuit is adapted to interrupt current flowing from [[a-]]the host device to the electronic components.
5. (Original) The battery pack of Claim 1, wherein the protection circuit is adapted to interrupt current flowing from a battery core pack to the electronic components.
6. (Original) The battery pack of Claim 1, further comprising at least one fuse serially connected to a battery core pack for interrupting current flowing from the battery core pack to the electronic components.
7. (Currently Amended) The battery pack of Claim 1, further comprising at least one fuse serially connected to [[a-]]the host device for interrupting current flowing from the host device to the electronic components.

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8. (Currently Amended) The battery pack of Claim 1, wherein the protection circuit comprises a fuel gauge integrated circuit adapted to determine a combined current flow associated with ~~[[a-]]~~the host device and the electronic components forming the battery pack.
9. (Original) The battery pack of Claim 1, wherein the protection circuit comprises a protection integrated circuit adapted to determine a current flow associated with the host device.
10. (Currently Amended) A battery pack, comprising:
at least one battery cell means coupled to electronic components forming the battery pack; and
means for separately identifying current consumption by the electronic components and detecting an excessive current consumption condition associated with the electronic components.
11. (Original) The battery pack of Claim 10, further comprising means for interrupting current flowing to the electronic components forming the battery pack in response to detecting the excessive current consumption condition.
12. (Original) The battery pack of Claim 10, further comprising means for comparing a voltage potential across at least two different current sensors to detect the excessive current consumption condition.
13. (Original) The battery pack of Claim 10, further comprising means for interrupting current flowing from a host device to the electronic components in response to detecting the excessive current consumption condition.
14. (Previously Presented) The battery pack of Claim 10, further comprising means for interrupting current flowing from the at least one battery cell means to the electronic components in response to detecting the excessive current consumption condition.

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15. (Previously Presented) A battery pack, comprising:
a battery core pack coupled to electronic components forming the battery pack; and
an integrated circuit adapted to compare potentials across at least two different
current sensors to detect an excessive current consumption condition associated with the
electronic components.

16. (Original) The battery pack of Claim 15, wherein the integrated circuit is adapted to
interrupt current flowing to the electronic components forming the battery pack in response
to detecting the excessive current consumption condition.

17. (Previously Presented) The battery pack of Claim 15, further comprising a fuse
serially connected to a positive terminal of the battery core pack for interrupting current
flowing from the battery core pack to the electronic components in response to detecting the
excessive current consumption condition.

18. (Previously Presented) The battery pack of Claim 15, further comprising a fuse
serially connected to a positive terminal of the battery core pack for interrupting current
flowing from a host device coupled to the battery pack to the electronic components in
response to detecting the excessive current consumption condition.

19. (Original) The battery pack of Claim 15, wherein at least one of the current sensors
comprises a current sense resistor.

20. (Original) The battery pack of Claim 19, wherein the current sense resistor is serially
connected between a positive terminal of the battery pack and a recharge transistor of the
battery pack.

21. (Previously Presented) The battery pack of Claim 19, wherein the current sense
resistor is serially connected between a negative terminal of the battery pack and a negative
terminal of the battery core pack.

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22. (Previously Presented) The battery pack of Claim 15, wherein at least one of the current sensors is connected in series between a positive terminal of the battery pack and a positive terminal of the battery core pack.

23. (Previously Presented) The battery pack of Claim 15, wherein at least one of the current sensors is connected in series between a negative terminal of the battery pack and a negative terminal of the battery core pack.

24. (Original) The battery pack of Claim 15, wherein the integrated circuit is adapted to distinguish between current flow associated with a host device and current consumption associated with the electronic components forming the battery pack based on the potentials across the at least two current sensors.

25. (Original) The battery pack of Claim 15, wherein the integrated circuit is adapted to determine current flow associated with a host device based on a potential across one of the at least two current sensors.

26. (Original) The battery pack of Claim 15, further comprising a fuse serially connected between a positive terminal of the battery pack and a recharge transistor for interrupting current flowing from a host device to the electronic components.

27. (Previously Presented) The battery pack of Claim 15, further comprising a fuse serially connected between a positive terminal of the battery core pack and a charge transistor for interrupting current flowing from the battery core pack to the electronic components.

28. (Original) The battery pack of Claim 15, wherein the integrated circuit is coupled to a fuse for interrupting current flowing from a host device to the electronic components in response to detecting the excessive current consumption condition.

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29. (Previously Presented) The battery pack of Claim 15, wherein the integrated circuit is coupled to a fuse for interrupting current flowing from the battery core pack to the electronic components in response to detecting the excessive current consumption condition.

30. (Previously Presented) A battery pack, comprising:

 a battery core pack connected to a positive terminal of the battery pack and a negative terminal of the battery pack, the positive and negative terminals adapted to be connected to a host device; and

 a protection circuit adapted to distinguish between current consumption associated with electronic components coupled to the battery core pack and forming the battery pack and current flow associated with the host device to determine whether an excessive current consumption condition exists associated with the electronic components of the battery pack.

31. (Original) The battery pack of Claim 30, wherein the protection circuit is adapted to interrupt current flowing to the electronic components of the battery pack in response to detecting the excessive current consumption condition.

32. (Original) The battery pack of Claim 30, wherein the protection circuit comprises at least one integrated circuit adapted to compare voltage potentials across at least two different current sense resistors to detect the excessive current consumption condition.

33. (Original) The battery pack of Claim 30, wherein the protection circuit comprises a current sensor serially connected between the positive terminal of the battery pack and a positive terminal of the battery core pack.

34. (Original) The battery pack of Claim 30, wherein the protection circuit comprises a current sensor serially connected between the negative terminal of the battery pack and a negative terminal of the battery core pack.

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35. (Original) The battery pack of Claim 30, wherein the protection circuit comprises at least one fuse for interrupting current flowing to the electronic components forming the battery pack in response to detecting the excessive current consumption condition.

36. (Original) The battery pack of Claim 30, wherein the protection circuit comprises a fuse for interrupting current flowing from the battery core pack to the electronic components in response to detecting the excessive current consumption condition.

37. (Original) The battery pack of Claim 30, wherein the protection circuit comprises a fuse for interrupting current flowing from the host device to the electronic components in response to detecting the excessive current consumption condition.

38. (Original) The battery pack of Claim 30, wherein the protection circuit comprises a current sensor serially connected between the positive terminal of the battery pack and a recharge transistor for determining the current flow associated with the host device.